#### **CHAPTER 5**

# RIGGING M119 HOWITZER FOR LOW-VELOCITY AIRDROP ON TYPE V PLATFORM

#### Section I

# RIGGING M119 HOWITZER AND ACCOMPANYING AMMUNITION

#### 5-1. Description of Load

The M119, 105-millimeter howitzer (line number H57505) is rigged on a 16-foot, type V airdrop platform with two G-11B cargo parachutes. This load includes an accompanying load of 30 boxes of ammunition and 7 boxes of fuzes weighing 3,713 pounds. The howitzer is rigged for a low-velocity airdrop from a C-130, C-141, or C-5 aircraft.

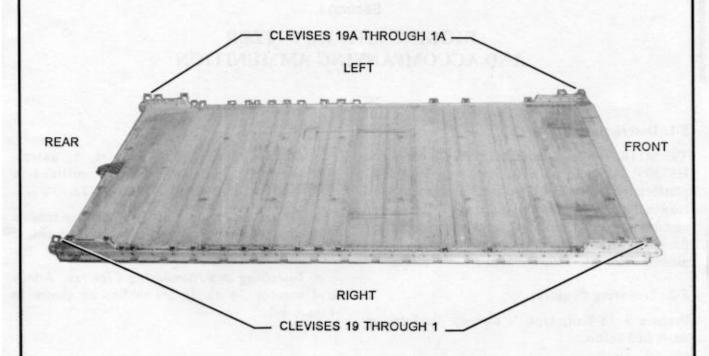
#### 5-2. Preparing Platform

Prepare a 16-foot, type V airdrop platform as described below.

- a. Inspecting Platform. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
- b. Installing Tandem Links. Install a tandem link on the front and rear of each rail as shown in Figure 5-1.
- c. Installing and Numbering Clevises. Attach and number 38 clevis assemblies as shown in Figure 5-1.

Notes: 1. The nose bumper may or may not be installed.

Measurements given in this chapter are from the front edge of the platform, NOT from the front edge of the nose bumper.



#### Step:

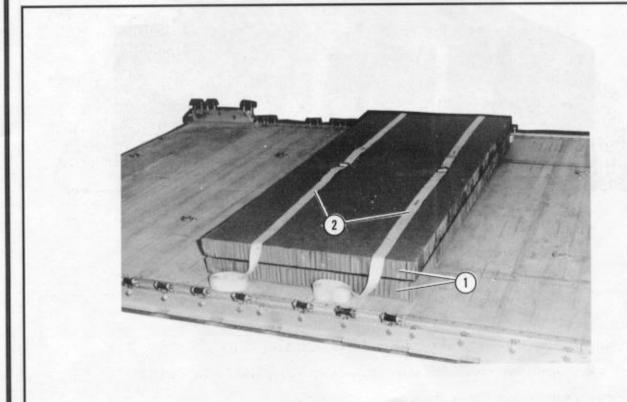
- 1. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
- Install a tandem link on the rear of each platform side rail using holes 30, 31, and 32.
- Install clevises on bushings 1 and 3 of each front tandem link.
- 4. Install clevises on bushings 1, 3, and 4 of each rear tandem link.
- Starting at the front of each platform side rail, install clevises on the bushings bolted on holes
   4, 9, 11, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, and 29.
- Starting at the front of the platform, number the clevises bolted to the right side from 1 through 19 and those bolted to the left side from 1A through 19A.
- Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 5-1. Platform prepared

#### 5-3. Stowing Accompanying Load

CAUTION: Only ammunition listed in FM 10-553/TO 13C7-18-41 may be airdropped.

Stow the accompanying load of 28 boxes of ammunition weighing 3,360 pounds as shown in Figures 5-2, 5-3, and 5-4. The other two boxes of ammunition will be stowed after the gun is lashed to the platform. Make sure the accompanying load meets the restrictions and requirements as outlined in FM 10-500-2/TO 13C7-1-5. When hazardous materials are rigged as part of the load, they must be packaged, marked, and labeled according to AFR 71-4/TM 38-250.



- (I) Center two 36- by 84-inch pieces of honeycomb 96 inches from the front edge of the platform.
- Form two 30-foot lashings according to FM 10-500-2/TO 13C7-1-5, and lay them from side to side on the honeycomb.

Figure 5-2. First stack of ammunition secured with lashings

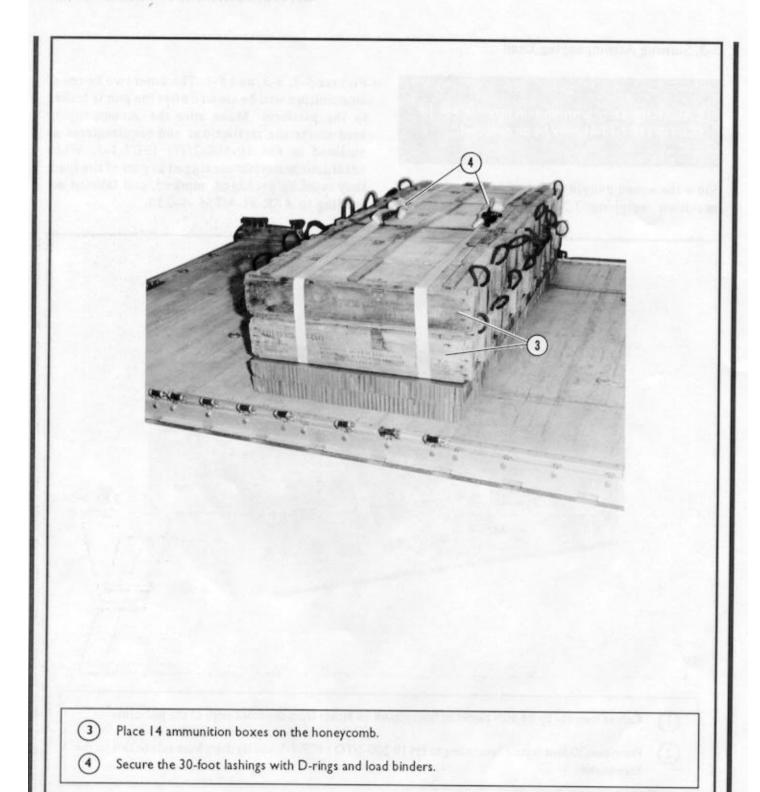


Figure 5-2. First stack of ammunition secured with lashings (continued)

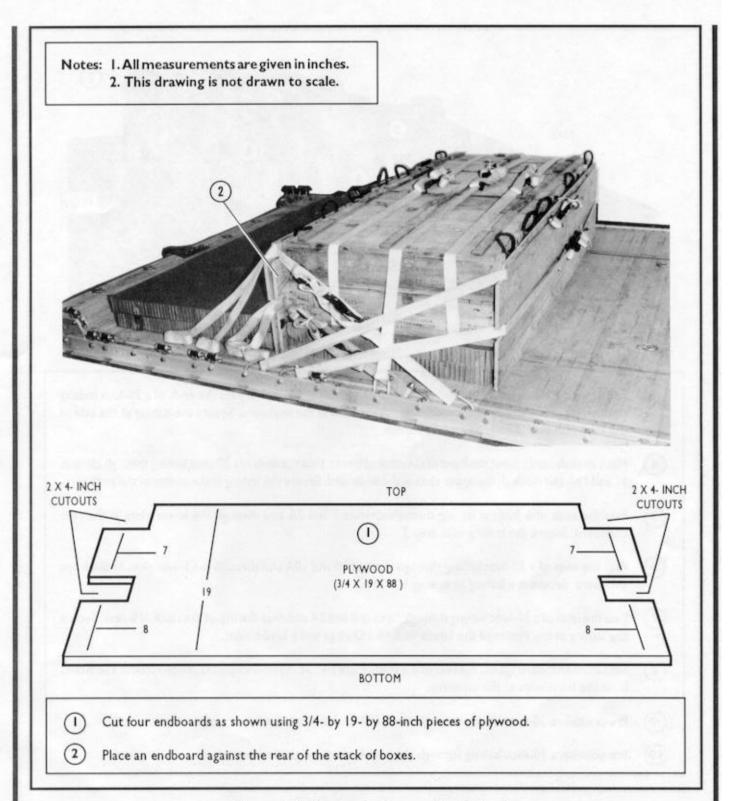
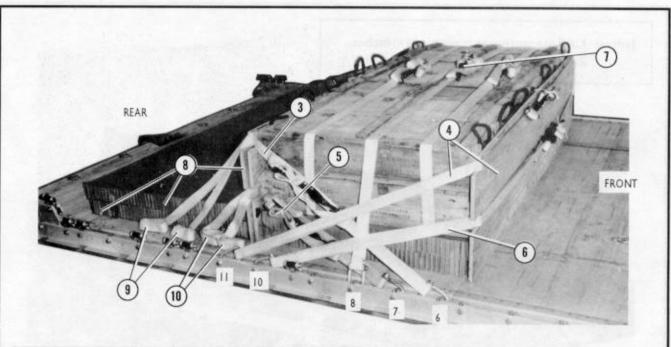
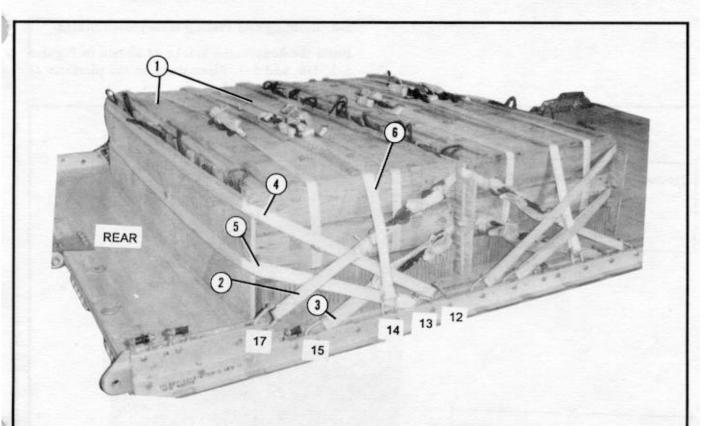


Figure 5-3. First stack of ammunition lashed



- Form seven 30-foot lashings according to FM 10-500-2/TO 13C7-1-5. Pass the ends of a 30-foot lashing through clevises 6 and 6A and through the upper slots in the endboard. Secure the lashing at the side of the load with two D-rings and a load binder.
- Place an endboard against the front of the stack of boxes. Pass the ends of a 30-foot lashing through clevises I I and I I A and through the upper slots in the endboard. Secure the lashing in the center of the endboard.
- Pass the ends of a 30-foot lashing through clevises 7 and 7A and through the lower slots in the rear endboard. Secure the lashing as in step 3.
- Pass the ends of a 30-foot lashing through clevises 10 and 10A and through the lower slots in the front endboard. Secure the lashing as in step 4.
- Pass the ends of a 30-foot lashing through clevises 8 and 8A and over the top of the stack of boxes. Secure the lashing in the center of the boxes with two D-rings and a load binder.
- 8 Set a third endboard against the rear of the stack. Place two 36- by 84-inch pieces of honeycomb 136 inches from the front edge of the platform.
- Pre-position a 30-foot lashing through clevis 17A and through the upper slots.
- (10) Pre-position a 30-foot lashing through clevis ISA and through the lower slots.

Figure 5-3. First stack of ammunition lashed (continued)



#### Note: Form five 30-foot lashings according to FM 10-500-2/TO 13C7-1-5.

- 1 Place two 30-foot lashings and 14 boxes of ammunition on the honeycomb. Secure the lashings as shown in Figure 5-2, step 4.
- Pass the 30-foot lashing pre-positioned in step 9, Figure 5-3, through clevis 17 and through the upper slots in the endboard. Secure the lashing at the side of the load with two D-rings and a load binder.
- Pass the 30-foot lashing pre-positioned in step 10, Figure 5-3, through clevis 15 and through the lower slots in the endboard. Secure the lashing as in step 2.
- Place an endboard against the rear of the stack of boxes. Pass the ends of a 30-foot lashing through clevises 12 and 12A and through the upper slots in the endboard. Secure the lashing on the left side of the load with two D-rings and a load binder.
- Pass the ends of a 30-foot lashing through clevises 13 and 13A and through the lower slots in the endboard. Secure the lashing as in step 4.
- Pass the ends of a 30-foot lashing through clevises 14 and 14A and over the top of the stack of boxes. Secure the lashing in the center of the boxes with two D-rings and a load binder.

Figure 5-4. Second stack of ammunition lashed

### 5-4. Building and Placing Honeycomb Stacks

Build the honeycomb stacks as shown in Figures 5-5, 5-6, and 5-7. Place them on the platform as shown in Figure 5-8.

and 6 inches deep in a 30-inch side. Place these pieces flush on the stack with the cutouts to the rear.

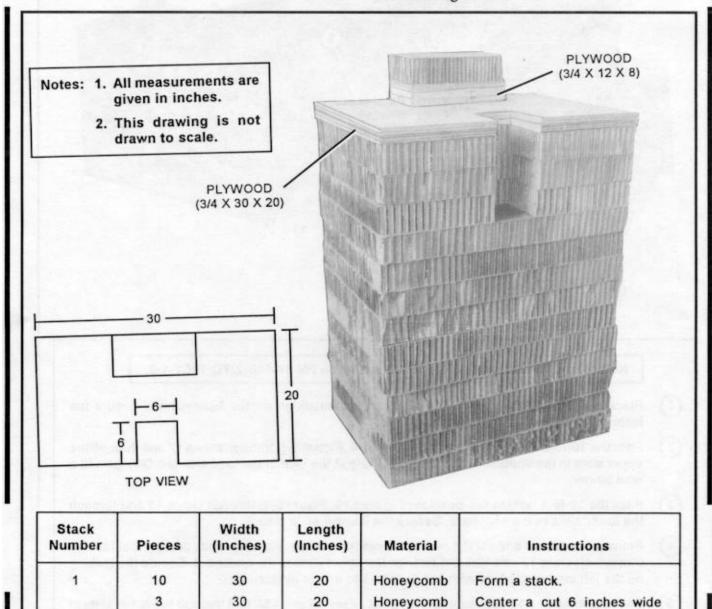
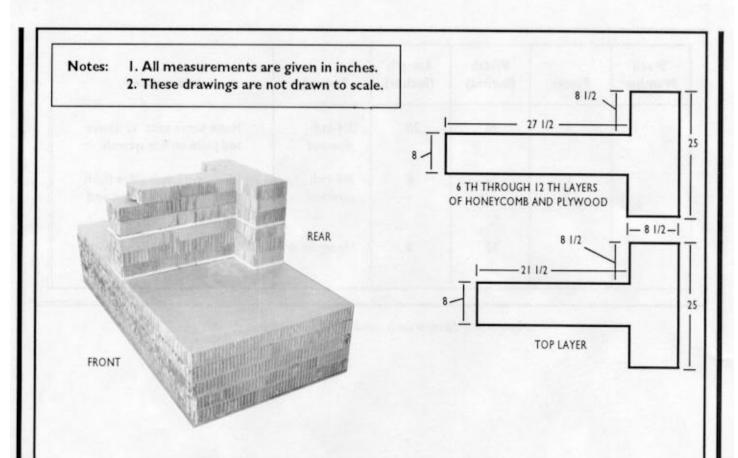


Figure 5-5. Honeycomb stack 1 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
	2	30	20	3/4-inch plywood	Make same cuts as above and place on honeycomb.
	3	12	8	3/4-inch plywood	Glue the 12-inch sides flush along the front edge and centered.
	I	12	8	Honeycomb	Glue flush over the plywood placed above.

Figure 5-5. Honeycomb stack 1 prepared (continued)



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
2	5	72	36	Honeycomb	Form a stack.
	1	25	36	3/4-inch plywood	Make cutouts as shown.
	3	25	36	Honeycomb	Make cutouts as shown, and place flush on the plywood.
	1	25	36	3/4-inch plywood	Make cutouts as shown, and place flush on the honey-comb.

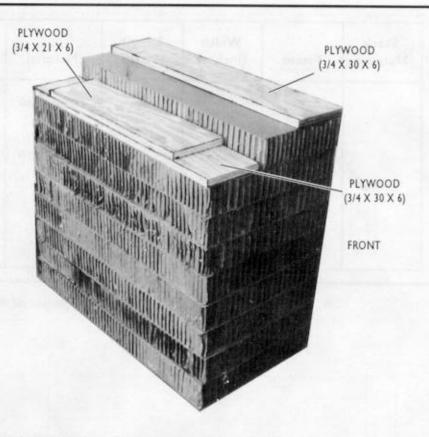
Figure 5-6. Honeycomb stack 2 prepared

## C2, FM 10-519/TO 13C7-10-31/FMFM 7-55

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
	2	25	36	Honeycomb	Make cutouts as shown, and place flush on the plywood.
	I	25	30	Honeycomb	Make cutouts as shown for the top layer, and place flush on the stack.
					Center the T-shaped stack on the base .

Figure 5-6. Honeycomb stack 2 prepared (continued)

Note: All measurements are given in inches.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
3	8	30	16	Honeycomb	Form a stack.
	1	30	10	Honeycomb	Glue honeycomb even with front edge of base.
	1	30	6	3/4-inch plywood	Glue plywood even with front edge of honeycomb.
	1	30	6	3/4-inch plywood	Glue plywood flush on rear area of stack.
	1	21	6	3/4-inch plywood	Center and glue plywood on the rear piece of plywood.

Figure 5-7. Honeycomb stack 3 prepared

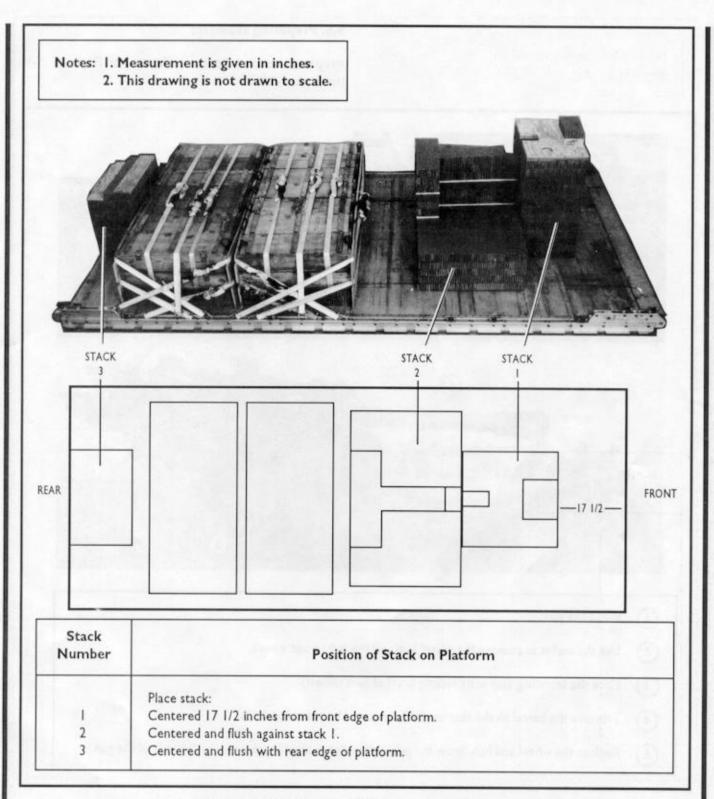
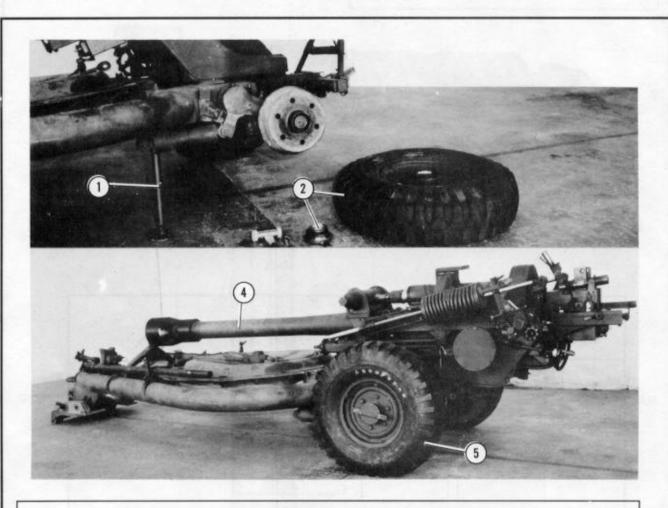


Figure 5-8. Honeycomb stacks placed on platform

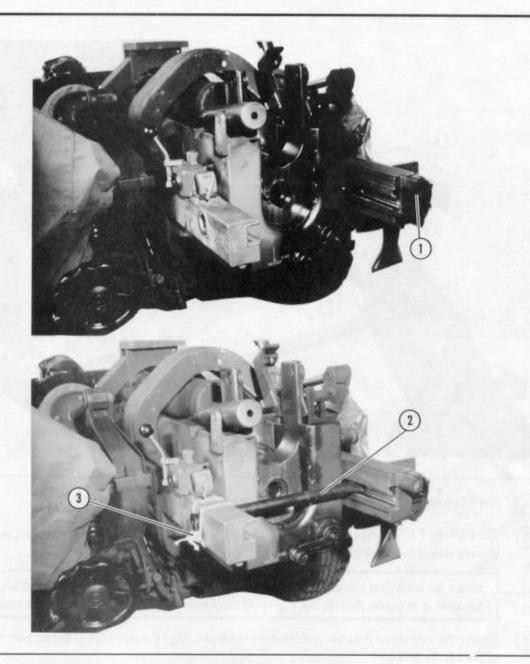
#### 5-5. Preparing Howitzer

Prepare the howitzer as shown in Figures 5-9 through 5-18.



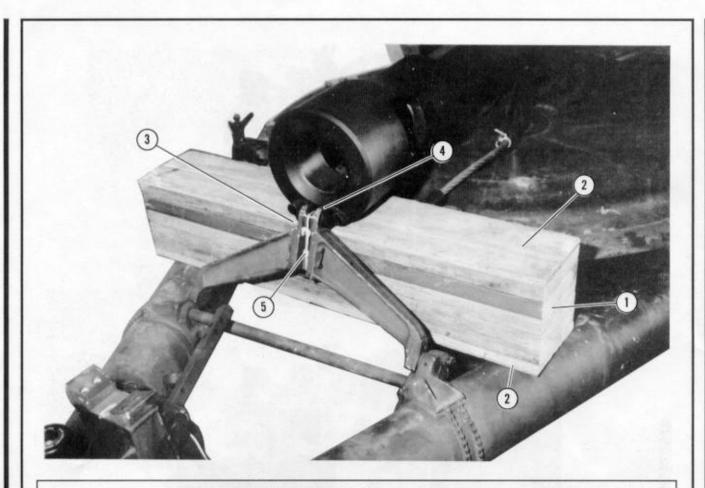
- (1) Install the jack.
- (2) Use the mallet to remove the wheel hub and the right front wheel.
- 3) Place the travelling stay in its locking bracket (not shown).
- Traverse the barrel to the rear until it is centered between the trails.
- (5) Replace the wheel and hub. Stow the jack and mallet in their bracket on the left side of the gun.

Figure 5-9. Gun placed in travel position



- (I) Remove the run back stop bar from its storage hole on the right rail. (Bar shown stowed.)
- (2) Insert the bar from the left side into the holes provided in both rails.
- Secure the left end of the bar to the left rail with type III nylon cord.

Figure 5-10. Run back stop bar secured across breech

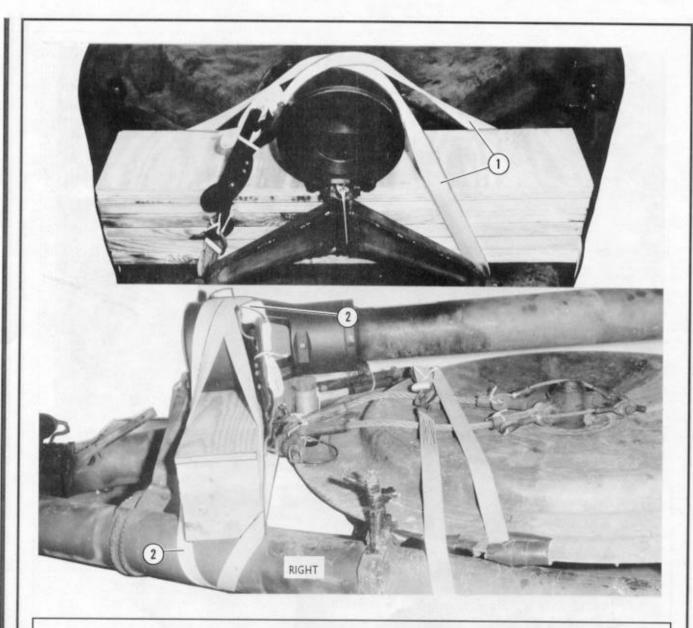


- Use 20d nails to nail five 2- by 8- by 40-inch pieces of lumber flush together.
- Cut a 3/4- by 7 1/2- by 40-inch piece and a 1/2- by 7 1/2- by 40-inch piece of plywood. Nail one piece flush to each side of the stack of boards.

Note: Be sure that the wood support fits snugly under the muzzle brake when the latch bracket is in place. Adjust the plywood thickness, if necessary, to ensure a snug fit.

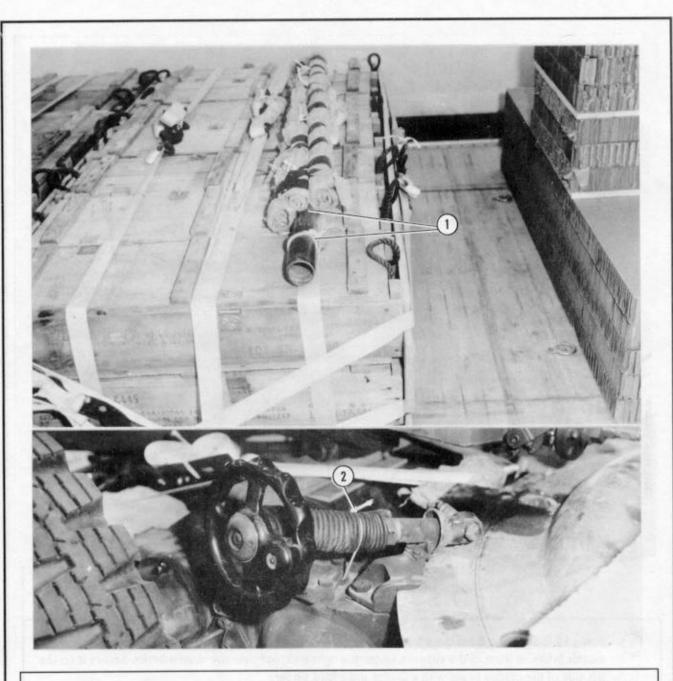
- 3 Center the support on the trails under the muzzle brake. Align the rear edge of the support with the edge of the muzzle brake.
- Swing the latch bracket assembly up to the muzzle brake. Lock the latch bracket assembly to the fitting on the muzzle brake.
- Secure the latch bracket with type III nylon cord.

Figure 5-11. Muzzle brake support constructed and placed



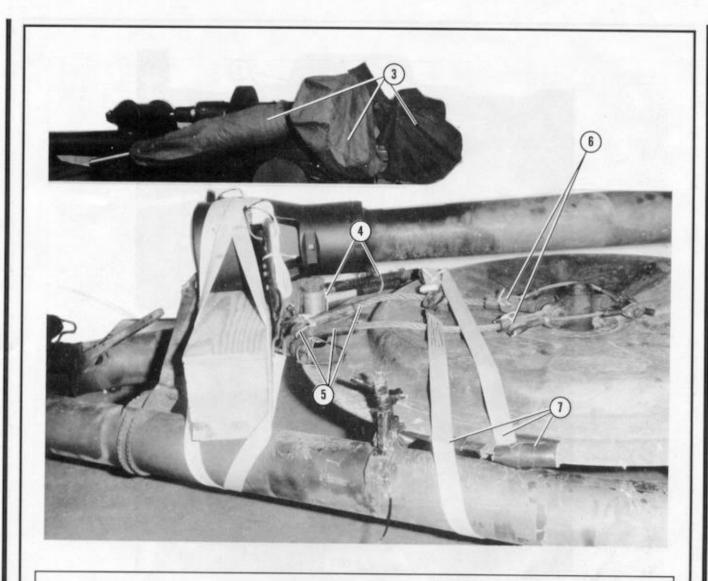
- Run a 15-foot lashing from the front of the support, around the left trail, behind the support, over the muzzle brake, in front of the support, under the right trail, and over the muzzle brake. Secure it on the left side of the muzzle brake with a D-ring and a load binder.
- Beginning behind the support on the right side, run a 15-foot lashing under the right trail, in front of the support, up over the muzzle brake, behind the support, under the left trail, and over the muzzle brake. Secure it on the right side and behind the support with a D-ring and a load binder.

Figure 5-12. Muzzle brake support secured



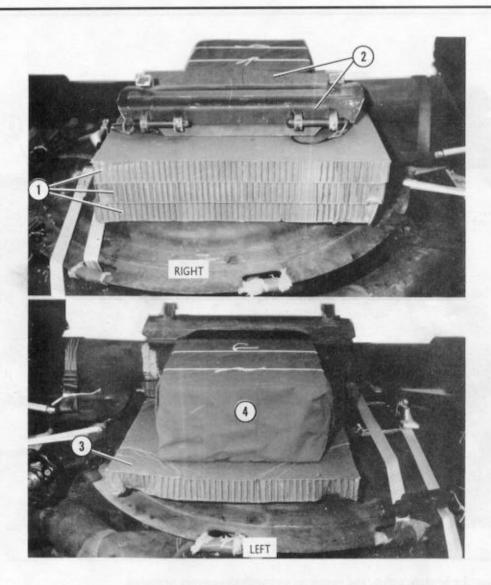
- Wrap the aiming poles, trail lifting bar, rammer staff, and barrel brush with cellulose wadding. Tie them to the front ammunition box lashing with type III nylon cord.
- (2) Remove the traversing wheel (not shown). Secure it to its bracket on the left trail with type III nylon cord.

Figure 5-13. Gun equipment stowed



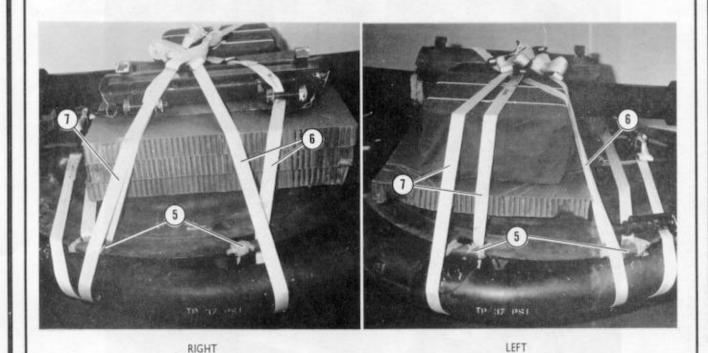
- (3) Cover the breech, sights, and recoil springs with the covers provided.
- (4) Tie the jack and mallet in their storage bracket with type III nylon cord.
- Tie the large firing stay cables to the rear firing platform hole with type III nylon cord.
- Tie the smaller firing stay cables to the large firing stay cables with type III nylon cord.
- Pad the rear side firing platform holes with 11-by 5-inch felt taped in place. Secure a 15-foot lashing through both holes, around the trails, and over the firing platform.

Figure 5-13. Gun equipment stowed (continued)



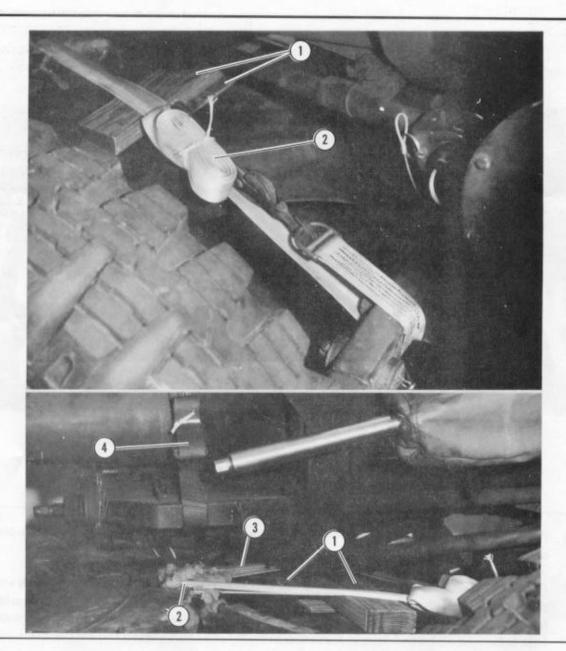
- Place a stack of three 18- by 36-inch pieces of honeycomb on the firing platform against the gun tube.
- (2) Lay an 8- by 36-inch piece of felt against the barrel. Place the field spade against the felt as shown.
- Place a 24- by 30-inch piece of honeycomb lengthwise on the firing platform on the left side of the gun tube.
- Wrap the gunner's sight box, tool bag, and camouflage net in a tarpaulin. Tie the bundle securely with type III nylon cord, and place it on the honeycomb.

Figure 5-14. Howitzer equipment stowed on firing platform



- Pad the two remaining side firing platform lifting holes on the firing platform with two 5- by 11-inch pieces of felt.
- Form two 30-foot lashings according to FM 10-500-2/TO 13C7-1-5. Lay a 30-foot lashing diagonally across the items stowed on the firing platform. Pass one end through the field spade hinge and firing platform lifting hole directly below. Pass the other end over the tarpaulin, down through the nearest firing platform lifting hole, and around the left trail. Bring both free ends to the top of the load, and secure them over the tarpaulin with two D-rings and a load binder.
- Pass the end of another 30-foot lashing through the second field spade hinge and down through the firing platform lifting hole directly below. Pass the other end over the tarpaulin, down through the remaining firing platform lifting hole, and around the left trail. Bring both free ends to the top of the load, and secure them as in step 6.

Figure 5-14. Howitzer equipment stowed on firing platform (continued)



Center a 1/2- by 10 1/2- by 6-inch piece of plywood directly under the hinge of the travelling stay. Center a 2- by 4- by 24-inch piece of lumber over the plywood.

Note: Be sure that the wood support fits snugly between the travelling stay and the carriage. Adjust the plywood thickness, if necessary, to ensure a snug fit.

Figure 5-15. Wood under buffer assembly secured

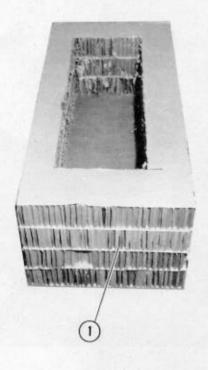
- Pad the front firing platform hole with cellulose wadding. Pass a 15-foot lashing through the hole, over the lumber placed in step 1, and around the brake light bar. Secure the lashing on top with a D-ring and a load binder.
- (3) Repeat step 2 on the left side, using the same firing platform hole.
- Pass a 60-inch shear strap around the barrel and under the buffer assembly. Secure the strap with its friction adapter. Tie the excess strap with 1/4-inch cotton webbing.

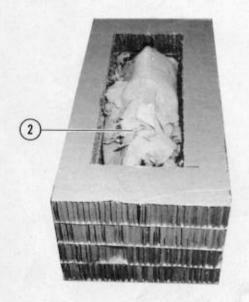
Figure 5-15. Wood under buffer assembly secured (continued)



(I) Tie the brake lines to the brake handle with type III nylon cord.

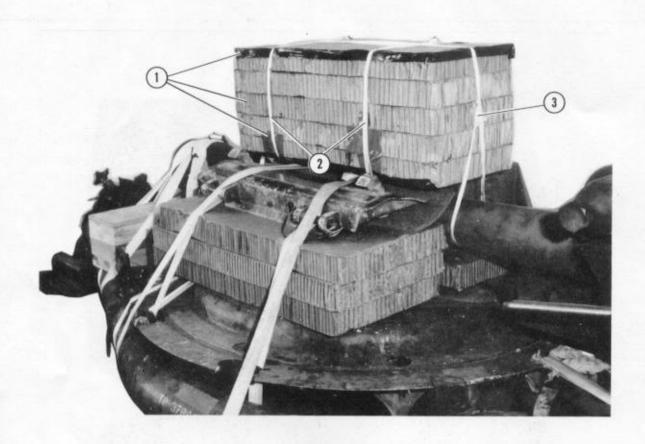
Figure 5-16. Brake lines secured to brake handle





- Cut five 15- by 36-inch pieces of honeycomb. Center a cutout in three of the pieces to fit the collimator. Glue the three pieces with the cutouts flush over a solid piece of honeycomb.
- 2 Pad the collimator generously with cellulose wadding, and place it in the collimator box.
- Tie the remaining solid piece of honeycomb flush over the box with lengths of 1/2-inch tubular nylon webbing (not shown).

Figure 5-17. Collimator stowed

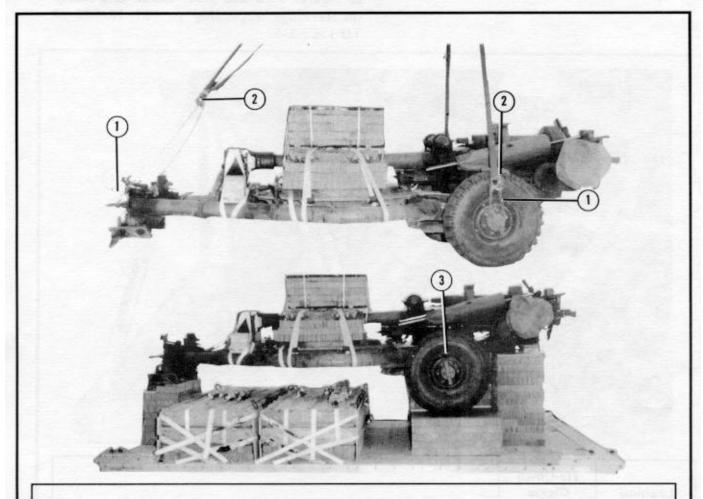


- Center the collimator lengthwise over the gun tube and the firing platform. Tape the top and bottom edges of the box.
- 2 Pass two lengths of 1/2-inch tubular nylon webbing under the gun tube and over the box. Tie them tightly with a surgeon's knot, a locking knot, and overhand knots in the running ends.
- Pass one length of 1/2-inch tubular nylon webbing lengthwise over the box. Secure it around the gun tube at each end with a trucker's hitch.

Figure 5-18. Collimator box secured to load

#### 5-6. Lifting and Positioning Howitzer

Lift the howitzer and position it on the honeycomb stacks as shown in Figure 5-19.



- Wrap 10,000-pound chains around the wheel hubs, and run a 10,000-pound chain through the lunette.
- Attach hooks to the ends of four 11-foot (2-loop), type XXVI nylon slings, and hook the slings to the chains. Adjust the chains, as necessary, to ensure that the howitzer remains level when lifted.

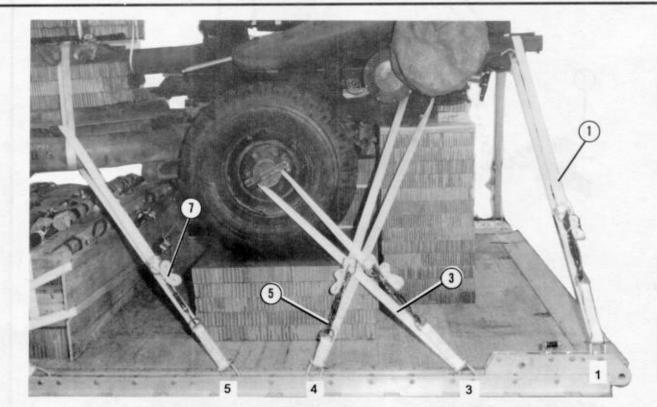
Note: The hooks shown are not standard items. Other hooks available at the rigging facility may be used.

(3) Center the howitzer on the platform, and on the stacks as shown.

Figure 5-19. Howitzer lifted and positioned on platform

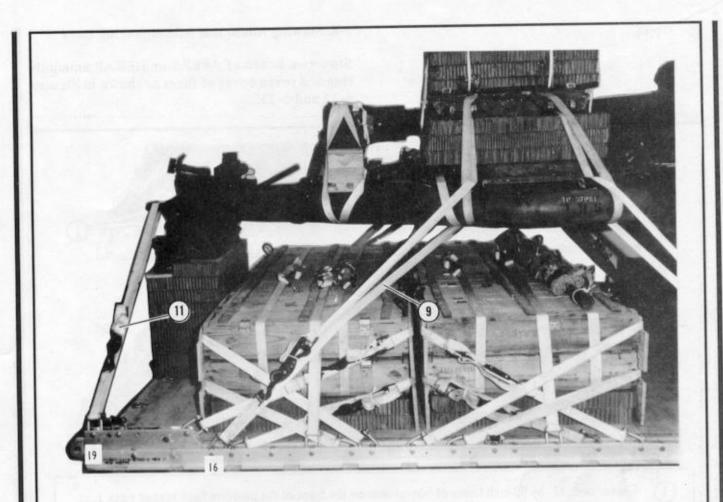
## 5-7. Lashing Howitzer

Lash the howitzer to the platform as shown in Figures 5-20 and 5-21. Install and safety the lashings according to FM 10-500-2/TO 13C7-1-5.



Lashing Number	Tie-Down Clevis Number	Instructions
		Pass lashing:
1	1	Around rail, right side.
2	1A	Around rail, left side.
3	3	Around wheel hub, right side.
4	3A	Around wheel hub, left side.
5	4	Around saddle, behind elevating wheel shaft, right side.
6	4A	Around saddle, left side.
7	5	Through hole in firing platform and around trail, right side.
8	5A	Through hole in firing platform and around trail, left side.

Figure 5-20. Lashings 1 through 8 installed

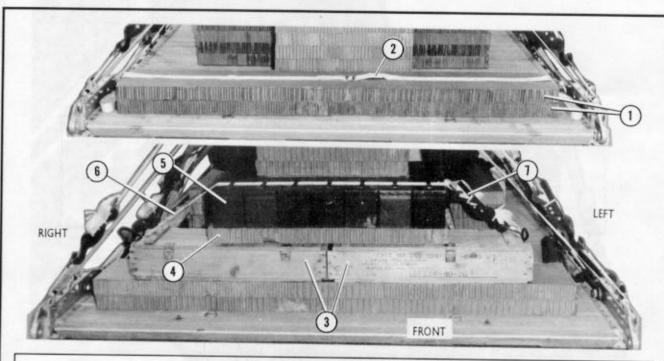


Lashing Number	Tie-Down Clevis Number	Instructions
9 10 11 12	16 16A 19 19A	Pass lashing: Through hole in firing platform and around trail, right side. Through hole in firing platform and around trail, left side. Through lunette, right side. Through lunette, left side.
		The second of the second of the second of the second of

Figure 5-21. Lashings 9 through 12 installed

#### 5-8. Stowing Additional Accompanying Load

Stow two boxes of APERS or HERAP ammunition and seven boxes of fuzes as shown in Figures 5-22 and 5-23.



- (I) Center two 12- by 90-inch layers of honeycomb on the front of the platform flush against stack 1.
- 2 Form a 30-foot lashing, and lay it from side to side on the layers of honeycomb.
- Place two APERS or HERAP boxes of ammunition on the honeycomb and the lashing as shown.
- Lay a 12- by 45-inch piece of honeycomb on the boxes. Compress the honeycomb to allow for the slats on the boxes.
- 5 Place seven boxes of fuzes side by side on the honeycomb.
- Pass one end of the lashing on the right side of the load through the handle of the wooden box and under the handles of the metal boxes. Pass the other end on the left side of the load under the handle of the wooden box.
- (7) Secure the lashing with two D-rings and a load binder on the left side of the load.

Figure 5-22. Boxes of ammunition and fuzes stowed and lashed together

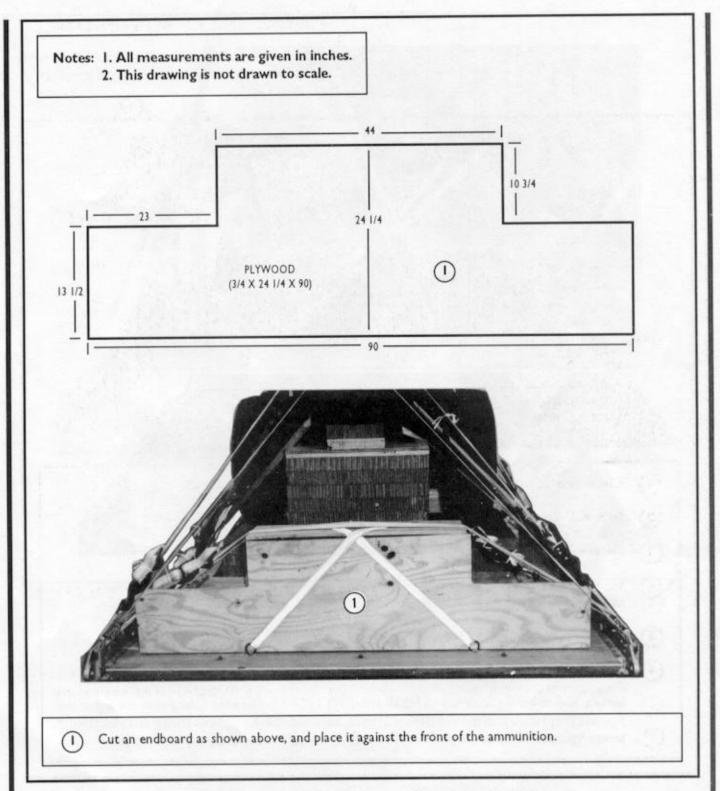
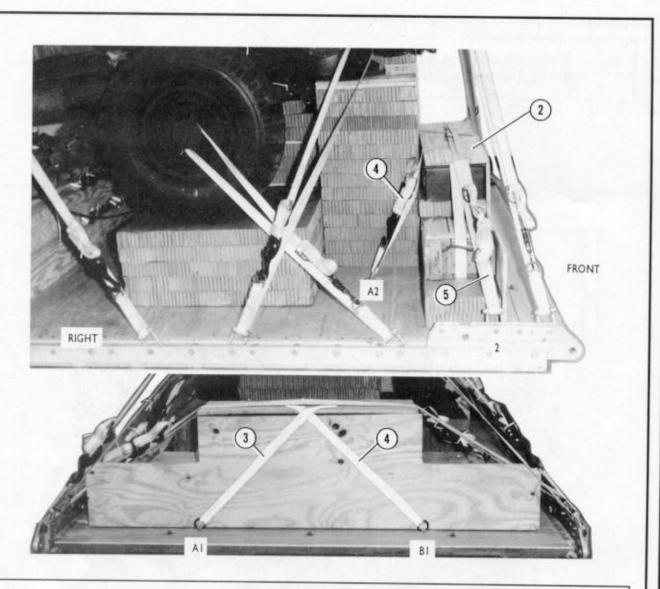


Figure 5-23. Boxes of ammunition and fuzes lashed to platform

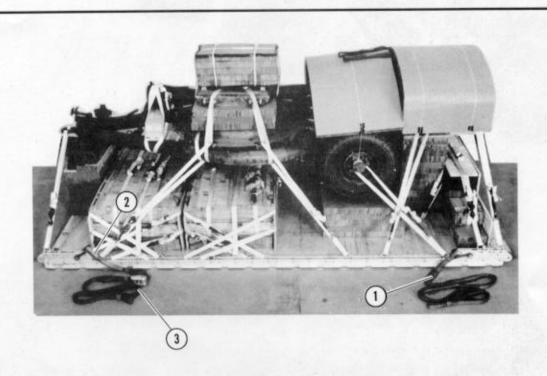


- 2 Place a 12- by 44-inch piece of 3/4-inch plywood on top of the fuze boxes.
- 3 Secure the plywood with a 15-foot lashing from tie-down ring A1 to B2.
- 4 Pass a 15-foot lashing from tie-down ring B1 to A2.
- Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Place the lashing over the top of the plywood and pass the ends through clevises 2 and 2A. Secure the lashing with two D-rings and a load binder on the right side of the boxes.

Figure 5-23. Boxes of ammunition and fuzes lashed to platform (continued)

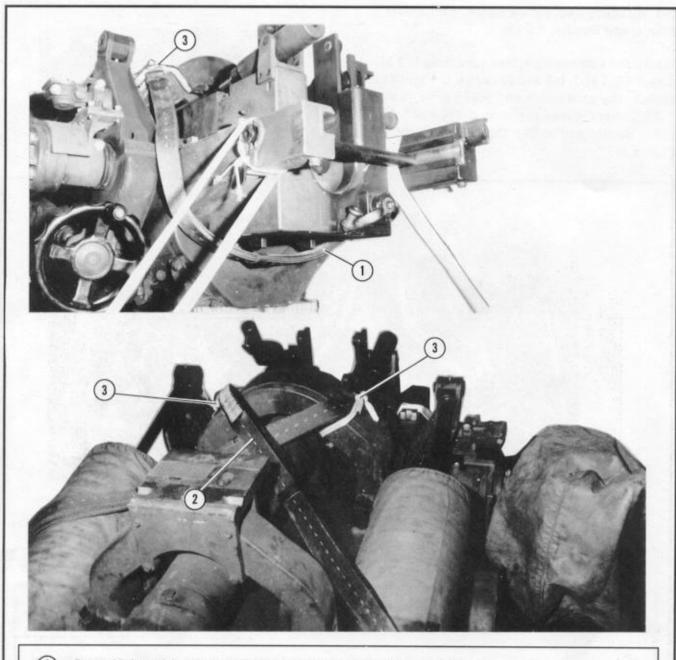
# 5-9. Installing Suspension Slings, Antitumble Slings, and Deadman's Tie

Install the suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-24. Install the antitumble slings as shown in Figure 5-25. Cover the load as shown in Figures 5-26 and 5-27. Secure and safety the slings as shown in Figure 5-27.



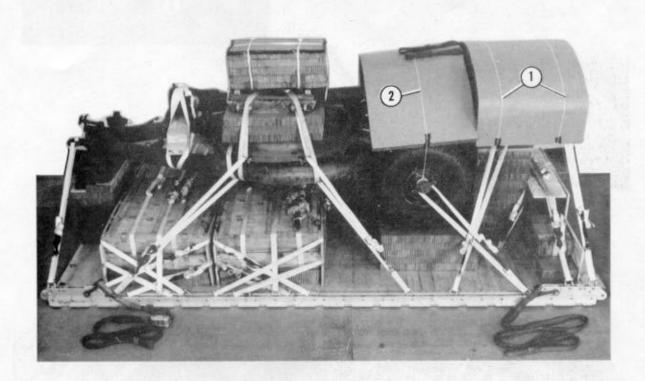
- Attach a 12-foot (2-loop), type XXVI nylon webbing sling to each front tandem link with a large suspension clevis.
- Attach a 3-foot (4-loop), type XXVI nylon webbing sling to each rear tandem link with a large suspension clevis.
- Attach a 9-foot (2-loop), type XXVI nylon webbing sling to each of the 3-foot slings installed in step 2 with a 5-1/2 inch two-point link assembly.

Figure 5-24. Suspension slings installed

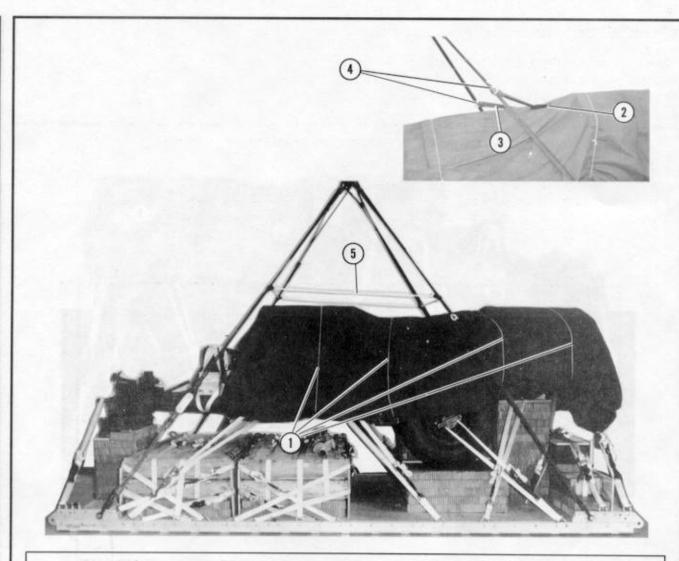


- Pass a 12-foot (2-loop), type XXVI nylon sling under the breech area.
- Bring both ends of the sling up over the yoke, and cross them over the recoil tube.
- Safety the sling to the yoke on each side with 1/2-inch tubular nylon webbing.

Figure 5-25. Antitumble sling installed on howitzer



- Bend a 36-by 96-inch sheet of honeycomb over the breech area of the gun. Secure it to convenient points on the load with type III nylon cord.
- Center a 36- by 96-inch sheet of honeycomb over the wheels. Rest the antitumble slings on top of the honeycomb. Bend the honeycomb down, and secure it to the wheel hubs with type III nylon cord.



- (1) Tie a 10- by 15-foot canvas load cover over the howitzer with type III nylon cord.
- (2) Cut slits in the cover to accommodate the antitumble slings.
- Extend the suspension slings upward to the crane hook, running the front slings through the loops in the antitumble slings.
- Tie the antitumble slings to the front suspension slings with 1/2-inch tubular nylon webbing, in a figure-8 safety tie.
- Safety the slings with a deadman's tie according to FM 10-500-2/ TO 13C7-1-5.

Figure 5-27. Slings secured and safetied

## 5-10. Stowing Cargo Parachutes

Prepare the parachute stowage platform and stow the cargo parachutes according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-28.

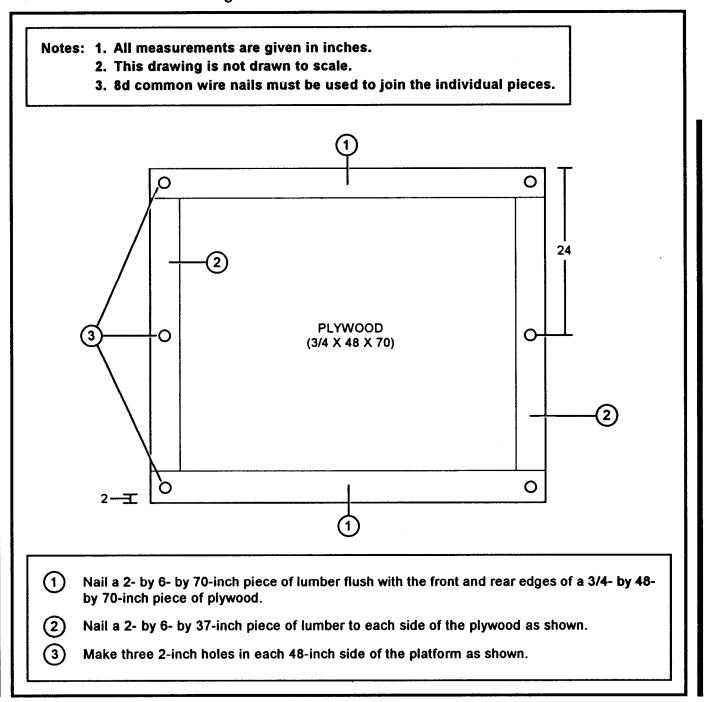
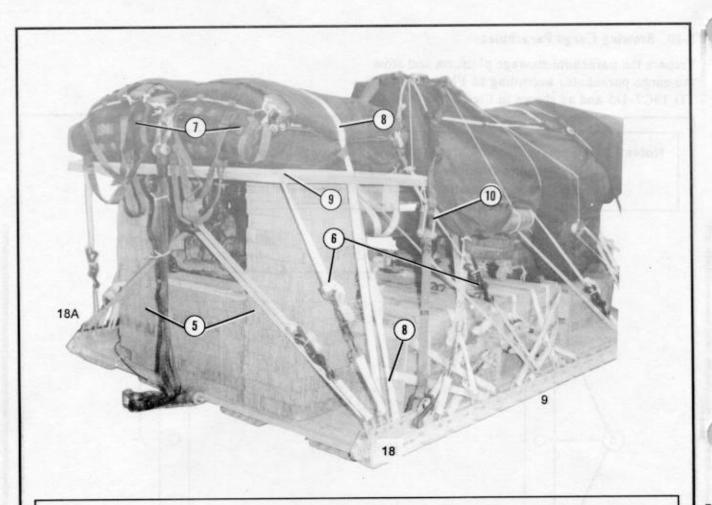


Figure 5-28. Parachute stowage platform constructed and cargo parachutes stowed



- Set two stacks of 17 layers each of 18- by 18-inch honeycomb flush against the accompanying load and stack 3. Set three 36- by 12-inch pieces of honeycomb on the gun trails 6 inches behind the gun tube support block to support the parachute stowage platform (not shown).
- Center the parachute stowage platform on the honeycomb stacks. Lash the parachute stowage platform to clevises 9 and 9A and clevises 18 and 18A.
- Prepare and install two G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5.
- 7 Tie one length of Type VIII nylon webbing over the parachutes and to the second bushing on each rear tandem link to restrain the parachutes.
- Tie the plywood and 2- by 6-inch lumber of the parachute stowage platform tightly together through the corner holes with type III nylon cord.
- Tie the two-point link on each rear suspension sling to the front corner hole in the parachute stowage platform with a length of type III nylon cord.

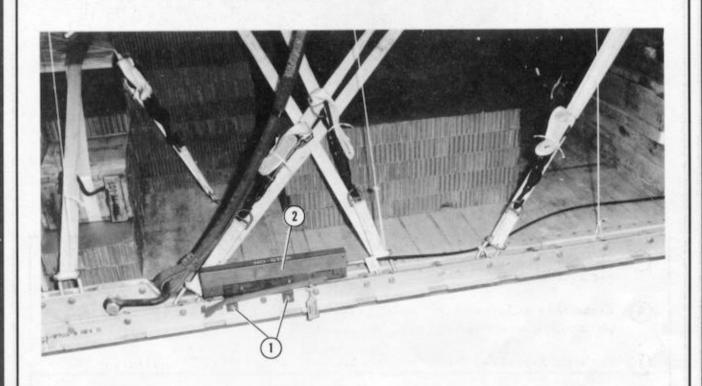
Figure 5-28. Parachute stowage platform constructed and cargo parachutes stowed (continued)

## 5-11. Installing Extraction System

Install the EFTC extraction system on the load according to FM 10-500-2/ TO 13C7-1-5 and as shown in Figure 5-29.

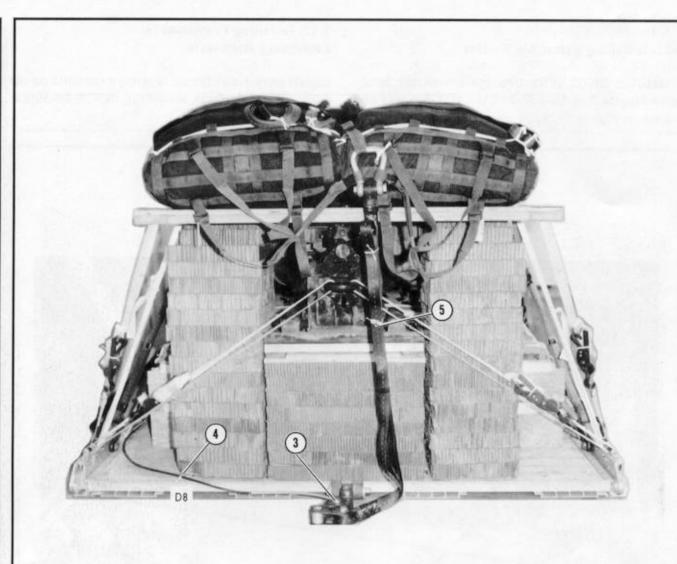
## 5-12. Installing Provisions for Emergency Restraints

Install provisions for emergency restraints on the front of the platform according to FM 10-500-2/TO 13C7-1-5.



- (1) Install the EFTC mounting brackets to the front set of holes on the left platform side rail.
- (2) Install the actuator according to FM 10-500-2/TO 13C7-1-5.

Figure 5-29. EFTC installed

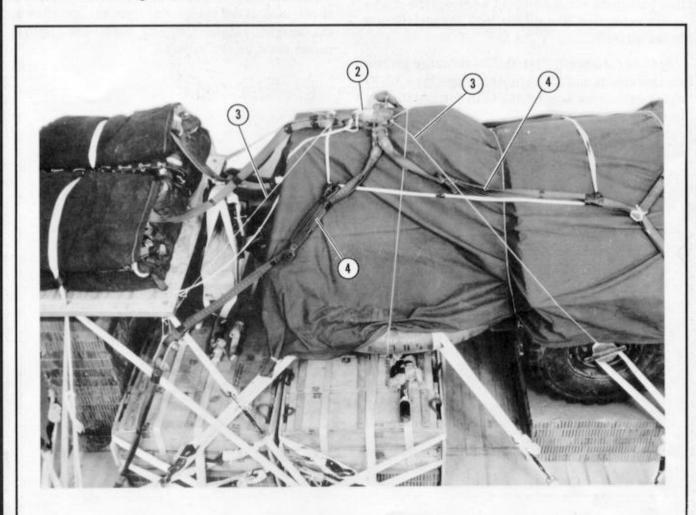


- Install the latch assembly and latch assembly adapter to the extraction bracket according to FM 10-500-2/TO 13C7-1-5.
- Install a 16-foot cable according to FM 10-500-2/TO 13C7-1-5. Safety the cable to tie-down ring D8 with 1/4-inch cotton webbing.
- 5 Install a 9-foot deployment sling on the load. Bolt it to the latch assembly. S-fold the slack, and tie the folds with 1/4-inch cotton webbing.

Figure 5-29. EFTC installed (continued)

## 5-13. Installing Release System

Prepare and install an M-1 cargo parachute release according to FM 10-500-2/ TO 13C7-1-5 and as shown in Figure 5-30.



- Prepare and install an M-1 cargo parachute release as outlined in FM 10-500-2/TO 13C7-1-5 (not shown).
- (2) Center the release on the collimator box.
- Tie the release to convenient points on the load with type III nylon cord.
- S-fold and tape or tie the slack in the suspension slings.

Figure 5-30. M-1 release installed

#### C2, FM 10-519/TO 13C7-10-31/FMFM 7-55

#### 5-14. Placing Extraction Parachute

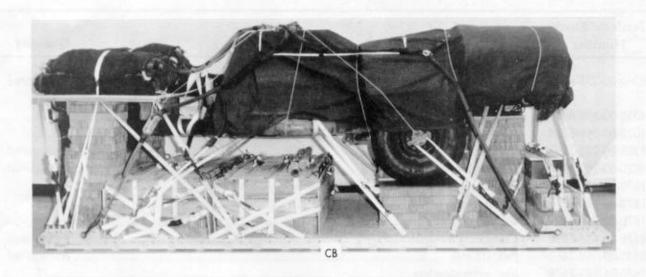
Place the extraction parachute as described below.

- a. C-130 Aircraft. Place a 22-foot cargo extraction parachute and a 60-foot (3-loop), type XXVI nylon extraction line on the load for installation in the aircraft.
- b. C-141 Aircraft. Place a 22-foot cargo extraction parachute and a 140-foot (3-loop), type XXVI nylon extraction line on the load for installation in the aircraft.

## 5-15. Marking Rigged Load

Mark the rigged load as described in FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-31. Complete DD Form 1387-2, and securely attach it to the load. If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION: Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.



	RIGGED LOAD	DATA
Weight:	Load shown	10,000 pounds
	Maximum load allowed	
Height		
Width		
Length		
Overhang:	Front	5 1/2 inche
	Rear	19 inches
CB (from fr	ont edge of platform)	
Extraction :	system	EFTC

Figure 5-31. M119 howitzer rigged for low-velocity airdrop on a type V platform

## 5-16. Equipment Required

Use the equipment listed in Table 5-1 to rig this load. The equipment required for rigging the accompanying load is also included.

Table 5-1. Equipment required for rigging the M119 howitzer for a low-velocity airdrop on a type V platform

National Stock Number	ltem	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	,
4030-00-678-8562	3/4-in (medium) (emergency restraint)	4
4030-00-090-5354	I-in (large)	5
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	
1670-00-434-5785	Coupling, airdrop, extraction force transfer w 16-ft cable	Î
1670-00-360-0328	Cover, clevis, large	I
1670-00-360-0329	Cover, link	6
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	Felt, 1/2-inch	As required
1670-01-183-2678	Leaf, extraction line	
	Line, extraction:	
1670-01-062-6313	60-ft (3-loop), type XXVI nylon webbing (for C-130)	
1670-01-107-7651	140-ft (3-loop), type XXVI nylon webbing (for C-141)	
1670-00-783-5988	Link assembly, type IV	
	Link assembly, two-point, 3 3/4-inch	
5306-00-435-8994	Bolt	
5310-00-232-5165	Nut , I-in	(2)
1670-00-003-1953	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	` '
	Link assembly, two-point, 5 1/2-inch	
5306-00-435-8994	Bolt	
5310-00-232-5165	Nut , I -in	` '
1670-00-003-1954	Plate, side, 5 1/2-inch	
5365-00-007-3414	Spacer, large	` '
	Lumber:	( )
5510-00-220-6146	2- by 4- by 24-in	
5510-00-220-6196	Lumber, 2- by 6- by:	
	48-in	
	59-in	
5510-00-220-6246	2- by 8- by 40-in	

Table 5-1. Equipment required for rigging the M119 howitzer for a low-velocity airdrop on a type V platform (continued)

Number	ltem	Quantity
	Nail, steel wire, common:	
5315-00-010-4659	8d	•
5315-00-164-5121	20d	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	
	12- by 8-in	
	12- by 45-in	(I)
	12- by 90-in	
	15- by 36-in	
	18- by 18-in	
	18- by 36-in	· ·
	24- by 30-in	
	25- by 30-in	
	25- by 36-in	
	30- by 10-in	
	30- by 16-in	
	30- by 20-in	
	36- by 84-in	
	36- by 96-in	• •
	72- by 36-in	
	Parachute:	
	Cargo:	
1670-00-269-1107	G-11A <u>or</u>	3
1670-01-016-7841	G-IIB	
1670-01-063-3716	Cargo extraction, 22-ft	
10/0-01-003-3/13	Platform, AD, type V, 16-ft:	
	Bracket:	······································
1670-01-162-2375	Inside EFTA	(1)
1670-01-162-2374	Outside EFTA	· · · · · · · · · · · · · · · · · · ·
1670-01-162-2374		· · · · · · · · · · · · · · · · · · ·
1670-01-162-2376	Clevis assembly	` ,
1670-01-162-2376	Extraction bracket assembly	
5530-00-129-7777	Tandem link	(†)
3530-00-127-1111	Plywood, 1/2-in:	1
	7 1/2- by 40-in	
TECO 00 100 4001	10 1/2- by 6-in	
5530-00-128-4981	Plywood, 3/4-in:	ı
	7 1/2- by 40-in	

## C2, FM 10-519/TO 13C7-10-31/FMFM 7-55

Table 5-1. Equipment required for rigging the M119 howitzer for a low-velocity airdrop on a type V platform (continued)

Number	ltem	Quantity
	12- by 44-in	I
	19- by 88-in	
	21- by 6-in	
	24 1/2- by 90-in	
	25- by 36-in	
	30- by 6-in	
	30- by 20-in	2
	48- by 70-in	
670-01-097-8816	Release, cargo parachute, M-1	
	Sling, cargo, airdrop:	
	For antitumble sling:	
670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	2
	For deployment line:	
670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	2
	For lifting:	
670-01-063-7760	11-ft (2-loop), type XXVI nylon webbing	4
	For riser extension:	
670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing (for G-11A)	6
670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing (for G-11B)	
	For suspension:	
670-01-062-6306	3-ft (4-loop), type XXVI nylon webbing	2
670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	
670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	
670-00-040-8219	Strap, parachute release, multicut, comes w 3 knives	
670-00-368-7486	Strap, webbing, nylon (shear strap)	
510-00-266-5016	Tape, adhesive, 2-in	
670-00-937-0271	Tie-down assembly, 15-ft	•
. = •	Webbing:	
305-00-268-2411	Cotton, I/4-in, type I	As require
305-00-082-5752	Nylon, tubular, 1/2-in, natural	•
305-00-263-3591	Nylon, type VIII	•

#### Section II

# RIGGING M119 HOWITZER, ACCOMPANYING AMMUNITION AND 81-MILLIMETER MORTAR

## 5-17. Description of Load

The M119, 105-millimeter howitzer (line number H57505) is rigged on a 16-foot, type V airdrop platform with three G-11B cargo parachutes. This load includes an accompanying load of 30 boxes of ammunition and 7 boxes of fuzes weighing 3,713 pounds, and an 81-millimeter mortar weighing 350 pounds. The howitzer is rigged for a low-velocity airdrop from a C-130, C-141, or C-5 aircraft.

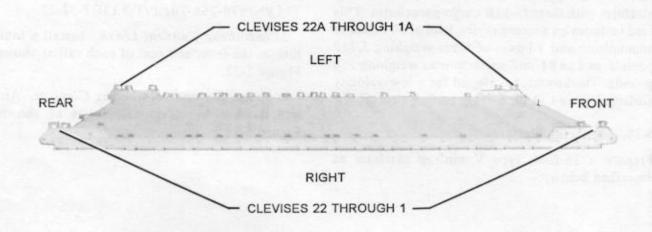
## 5-18. Preparing Platform

Prepare a 16-foot, type V airdrop platform as described below.

- a. Inspecting Platform. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
- b. Installing Tandem Links. Install a tandem link on the front and rear of each rail as shown in Figure 5-32.
- c. Installing and Numbering Clevises. Attach and number 44 clevis assemblies as shown in Figure 5-32.

Notes: 1. The nose bumper may or may not be installed.

Measurements given in this chapter are from the front edge of the platform, NOT from the front edge of the nose bumper.



## Step:

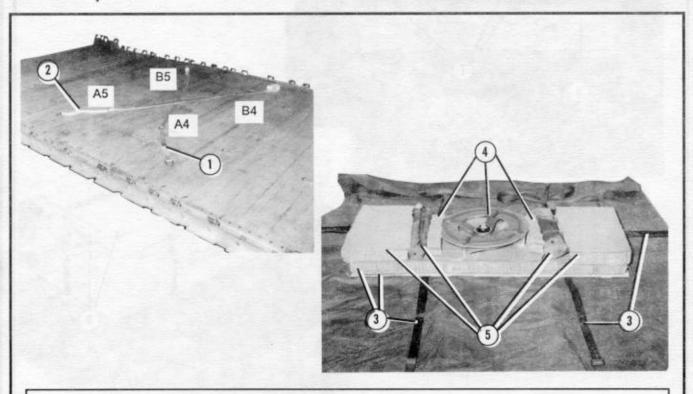
- 1. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
- Install a tandem link on the rear of each platform side rail using holes 30, 31, and 32.
- 3. Install clevises on bushings 1 and 3 of each front tandem link.
- 4. Install clevises on bushings 1, 3, and 4 of each rear tandem link.
- Starting at the front of each platform side rail, install clevises on the bushings bolted on holes 4, 9, 11, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, and 29.
- Starting at the front of the platform, number the clevises bolted to the right side from 1 through 22 and those bolted to the left side from 1A through 22A.
- Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 5-32. Platform prepared

## 5-19. Stowing Accompanying Load

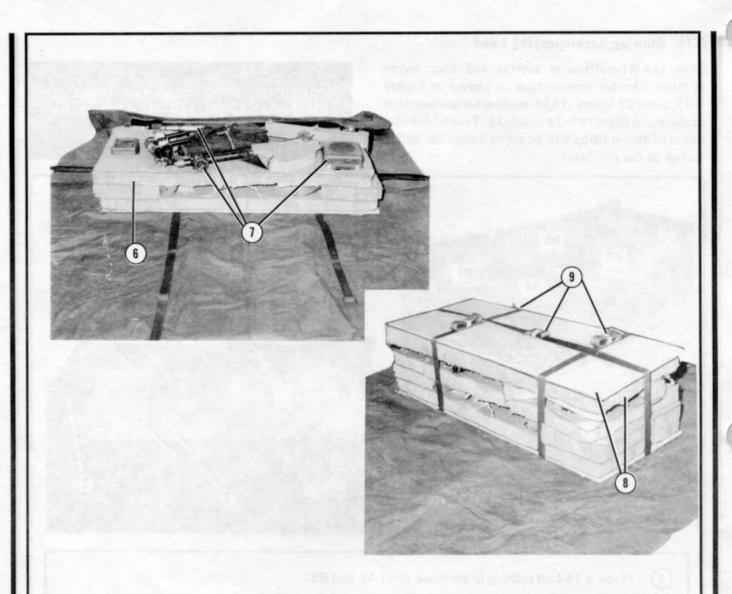
Stow the 81-millimeter mortar and four boxes of 81-millimeter ammunition as shown in Figure 5-33. Stow 28 boxes of 105-millimeter ammunition as shown in Figures 5-34 and 5-35. Two additional boxes of ammunition will be stowed after the gun is lashed to the platform.

CAUTION: Only ammunition listed in FM 10-500-53/TO 13C7-18-41 may be airdropped.



- 1) Place a 15-foot lashing in tie-down rings A4 and B5.
- (2) Place a 15-foot lashing in tie-down rings A5 and B4.
- Center an A-21 bag or a 10- by 10-foot piece of cotton duck cloth over the lashings. Lay two A7A straps over the cover 36 inches apart and center a third A7A strap over them. Center a 24- by 62-inch piece of 3/4-inch plywood over the straps and the cover. Center a 24- by 62-inch piece of honeycomb over the plywood.
- Center the mortar baseplate over the honeycomb. Place a 16- by 3-inch piece of honeycomb on each side of the baseplate.
- 5 Place a bundle of aiming pole sections on each side of the honeycomb placed in step 4 above. Fill the remaining area with honeycomb cut to fit.

Figure 5-33. Mortar and ammunition stowed



- (6) Place a 24- by 62-inch piece of honeycomb over the items placed in steps 4 and 5.
- Place the mortar tube along one side of the package. Arrange the mount, bipod, and sight boxes on the honeycomb. Pad with cellulose wadding and honeycomb, and fill empty space with honeycomb.
- 8 Cover the package with a 24- by 62-inch piece of honeycomb, and a 3/4- by 24- by 62-inch piece of plywood.
- 9 Secure the package as shown with the three A7A straps placed in step 3.

Figure 5-33. Mortar and ammunition stowed (continued)

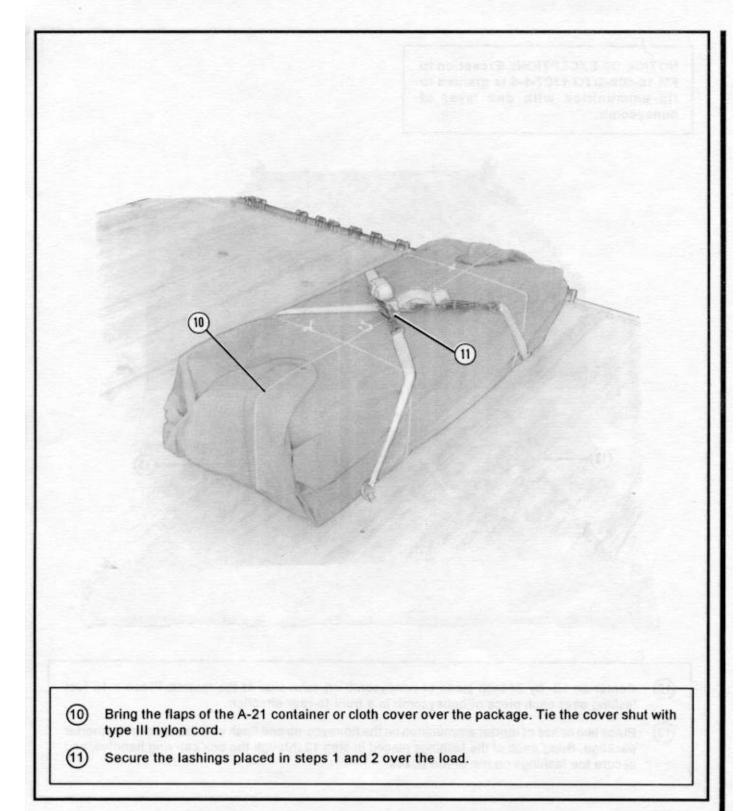


Figure 5-33. Mortar and ammunition stowed (continued)

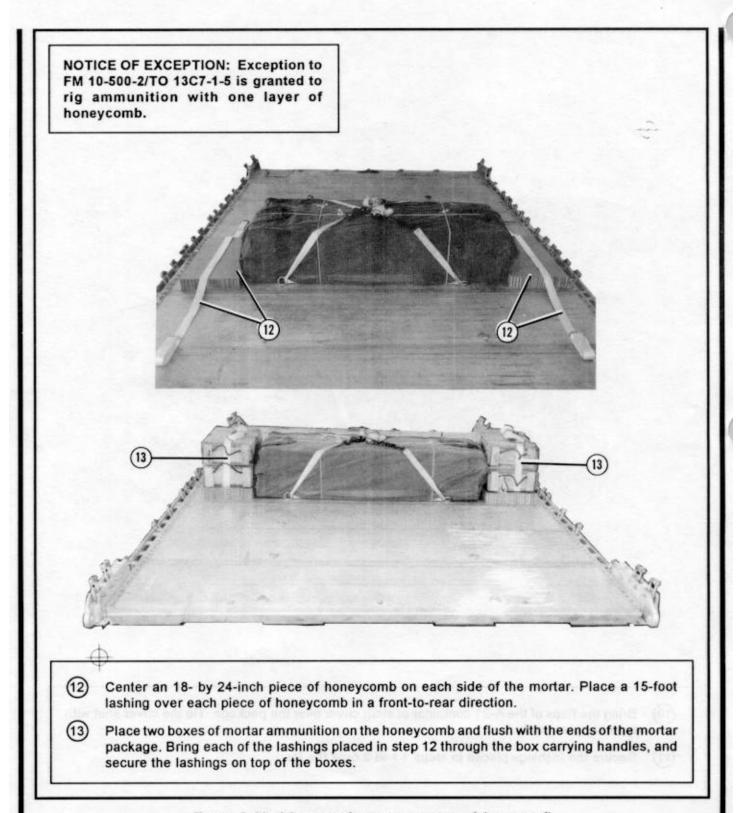
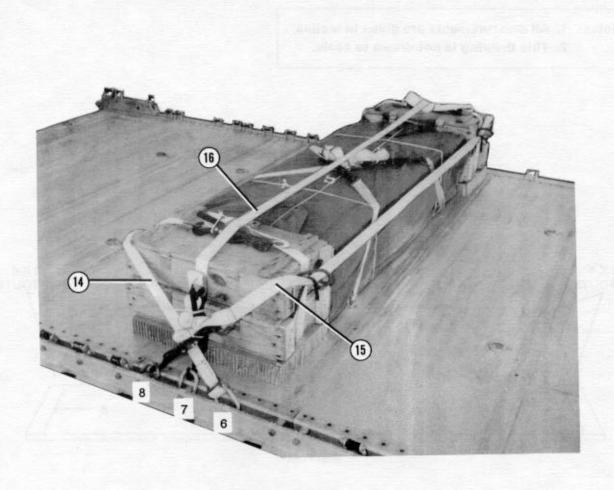


Figure 5-33. Mortar and ammunition stowed (continued)

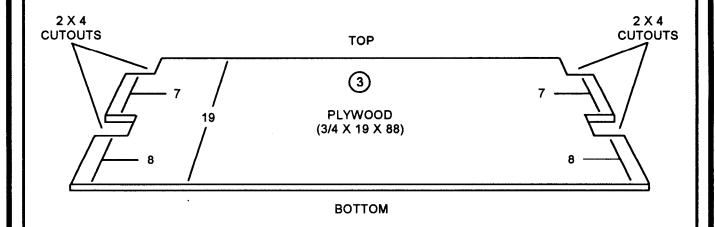


- Run a 15-foot lashing through clevis 6 and through its own D-ring. Run the lashing through both carrying handles at the rear of the right boxes and around the rear side. Run the lashing through both carrying handles at the rear of the left boxes. Secure the lashing to clevis 6A with a D-ring and a load binder.
- Run a 15-foot lashing through clevis 8A and through its own D-ring. Run the lashing through both carrying handles at the front of the left boxes and around the front side. Run the lashing through both carrying handles at the front of the right boxes. Secure the lashing to clevis 8 with a D-ring and a load binder.
- Run a 15-foot lashing through clevis 7A and through its own D-ring. Run the lashing over the top of the ammunition and mortar. Secure the lashing to clevis 7 with a D-ring and a load binder.

Figure 5-33. Mortar and ammunition stowed (continued)

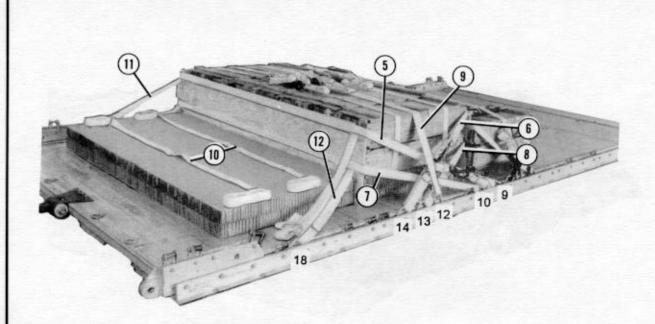
Notes: 1. All measurements are given in inches.

2. This drawing is not drawn to scale.



- 1 Center two 36- by 84-inch pieces of honeycomb 96 inches from the front edge of the platform and place two 30-foot lashings on the honeycomb as shown in Figure 5-2, steps 1 and 2.
- 2) Place 14 boxes of ammunition on the honeycomb and bind the boxes together with the lashings as shown in Figure 5-2, steps 3 and 4.
- 3 Cut three endboards as shown using 3/4- by 19- by 88-inch pieces of plywood.
- (4) Place an endboard against the front and rear of the first stack of boxes (not shown).

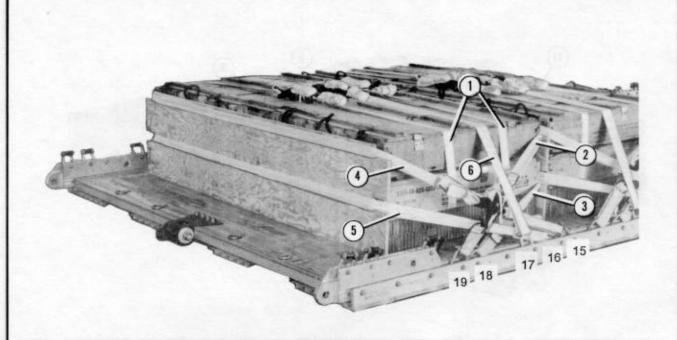
Figure 5-34. First stack of ammunition lashed



## Note: Form nine 30-foot lashings according to FM 10-500-2/TO 13C7-1-5.

- Pass the ends of a 30-foot lashing through clevises 9 and 9A and through the upper slots in the second endboard. Secure the lashing at the side of the load with two D-rings and a load binder.
- Pass the ends of a 30-foot lashing through clevises 14 and 14A and through the upper slots in the first endboard. Secure the lashing as in step 5.
- Pass the ends of a 30-foot lashing through clevises 10 and 10A and through the lower slots in the rear endboard. Secure the lashing as in step 5.
- 8 Pass the ends of a 30-foot lashing through clevises 13 and 13A and through the lower slots in the front endboard. Secure the lashing as in step 5.
- Pass the ends of a 30-foot lashing through clevises 12 and 12A and over the top of the stack of boxes. Secure the lashing in the center of the boxes with two D-rings and a load binder.
- Center two 36- by 84-inch pieces of honeycomb against the second endboard. Place two 30-foot lashings on the honeycomb as shown.
- (11) Pre-position a 30-foot lashing through clevis 19A and through the upper slots.
- (12) Pre-position a 30-foot lashing through clevis 18 and through the lower slots.

Figure 5-34. First stack of ammunition lashed (continued)



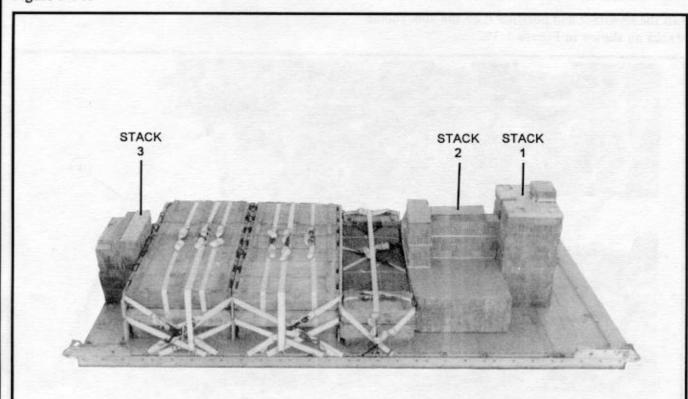
Note: Form five 30-foot lashings according to FM 10-500-2/TO 13C7-1-5.

- 1 Place the second stack of 14 boxes of ammunition on the honeycomb. Secure the lashings prepositioned in step 10, Figure 5-34, around the second stack of boxes.
- Pass the 30-foot lashing pre-positioned in step 11, Figure 5-34, through clevis 19 and through the upper slots in the endboard. Secure the lashing at the side of the load with two D-rings and a load binder.
- 3 Pass the 30-foot lashing pre-positioned in step 12, Figure 5-34, through clevis 18A and through the lower slots in the endboard. Secure the lashing as in step 2.
- Place an endboard against the rear of the stack of boxes. Pass the ends of a 30-foot lashing through clevises 15 and 15A and through the upper slots in the endboard. Secure the lashing on the side of the load with two D-rings and a load binder.
- 5 Pass the ends of a 30-foot lashing through clevises 16 and 16A and through the lower slots in the endboard. Secure the lashing as in step 4.
- Pass the ends of a 30-foot lashing through clevises 17 and 17A and over the top of the stack of boxes. Secure the lashing in the center of the boxes with two D-rings and a load binder.

Figure 5-35. Second stack of ammunition lashed

## 5-20. Building and Placing Honeycomb Stacks

Build the honeycomb stacks for the howitzer as shown in Figures 5-5, 5-6, and 5-7. Place the honeycomb stacks on the platform as shown in Figure 5-36.



Stack Number	Position of Stack on Platform	
	Place stack:	
1	Centered 17 1/2 inches from front edge of platform.	
2	Centered and flush against stack 1.	
3	Centered and flush with rear edge of platform.	

Figure 5-36. Honeycomb stacks placed on platform

## 5-21. Preparing Howitzer

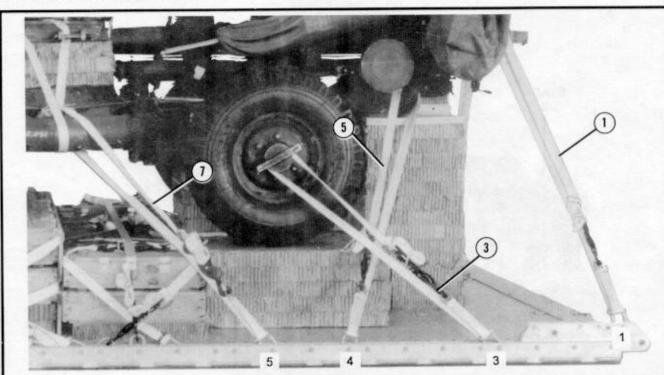
Prepare the howitzer as shown in Figures 5-9 through 5-18.

## 5-22. Lifting and Positioning Howitzer

Lift the howitzer and position it on the honeycomb stacks as shown in Figure 5-19.

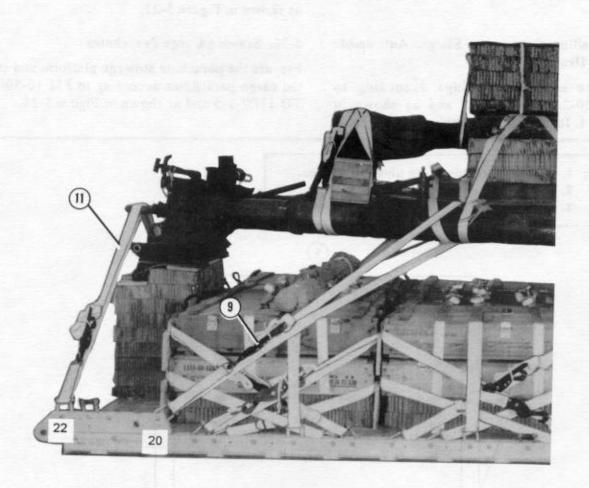
## 5-23. Lashing Howitzer

Lash the howitzer to the platform with twelve 15-foot lashings as shown in Figure 5-37. Install and safety the lashings according to FM 10-500-2/TO 13C7-1-5.



Lashing Number	Tie-Down Clevis Number	Instructions
No.		Pass lashing:
1	1	Around rail, right side.
2	1A	Around rail, left side.
3	3	Around wheel hub, right side.
4	3A	Around wheel hub, left side.
5	4	Around saddle, behind elevating wheel shaft, right side.
6	4A	Around saddle, left side.
7	5	Through hole in firing platform and around trail, right side.
8	5A	Through hole in firing platform and around trail, left side.

Figure 5-37. Lashings installed



Lashing Number	Tie-Down Clevis Number	Instructions
	The Bolt are a first	Pass lashing:
9	20	Through hole in firing platform and around trail, right side.
10	20A	Through hole in firing platform and around trail, left side.
11	22	Through lunette, right side.
12	22A	Through lunette, left side.

Figure 5-37. Lashings installed (continued)

#### 5-24. Stowing Additional Accompanying Load

Stow two boxes of APERS or HERAP ammunition and seven boxes of fuzes as shown in Figures 5-22 and 5-23.

## 5-25. Installing Suspension Slings, Antitumble Sling, and Deadman's Tie

Install the suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-24. Install the antitumble sling as shown

in Figure 5-25. Cover the load as shown in Figures 5-26 and 5-27. Secure and safety the slings as shown in Figure 5-27.

#### 5-26. Stowing Cargo Parachutes

Prepare the parachute stowage platform and stow the cargo parachutes according to FM 10-500-2/ TO 13C7-1-5 and as shown in Figure 5-38.

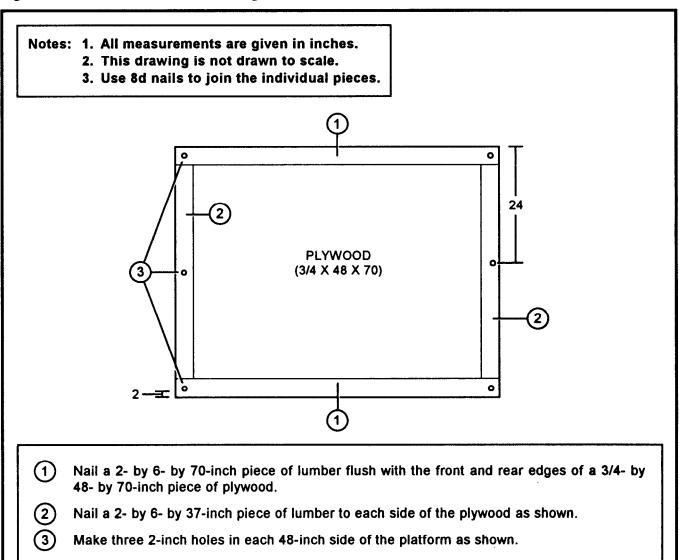
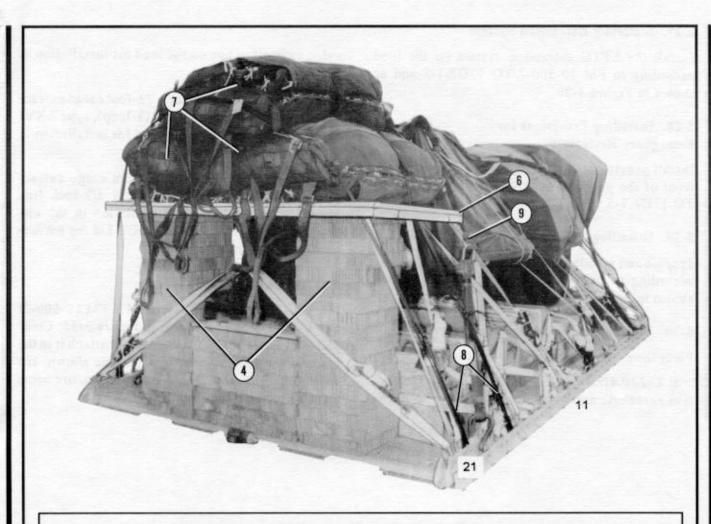


Figure 5-38. Parachute stowage platform constructed and cargo parachutes stowed



- Set two stacks of 17 layers each of 18- by 18-inch honeycomb flush against the accompanying load and stack 3.
- Set three 36- by 12-inch pieces of honeycomb on the gun trails 6 inches behind the gun tube support block to support the parachute stowage platform (not shown).
- 6 Center the parachute stowage platform on the honeycomb stacks. Lash the parachute stowage platform to clevises 11 and 11A and clevises 21 and 21A.
- 7 Prepare and install three G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5.
- Tie the rear restraint strap to the second bushing on each rear tandem link. Tie the front restraint strap to the 27th bushing on each side.
- Tie the two-point link on each rear suspension link to the front corner hole in the parachute stowage platform with a length of Type III nylon cord.

Figure 5-38. Parachute stowage platform constructed and cargo parachutes stowed (continued)

#### 5-27. Installing Extraction System

Install the EFTC extraction system on the load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-29.

## 5-28. Installing Provisions for Emergency Restraints

Install provisions for emergency restraints on the front of the platform according to FM 10-500-2/TO 13C7-1-5.

#### 5-29. Installing Release System

Prepare and install an M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-30.

## 5-30. Placing Extraction Parachute

Place the extraction parachute as described below.

a. C-130 Aircraft. Place a 22-foot cargo extraction parachute and a 60-foot (3-loop), type XXVI

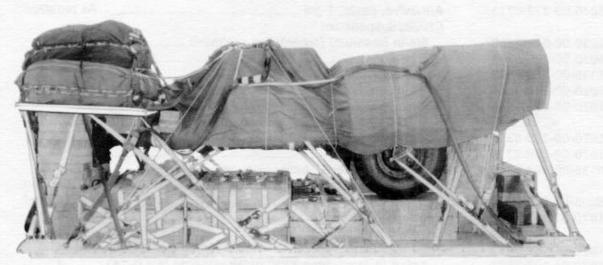
nylon extraction line on the load for installation in the aircraft.

- b. C-141 Aircraft. Place a 22-foot cargo extraction parachute and a 140-foot (3-loop), type XXVI nylon extraction line on the load for installation in the aircraft.
- c. C-5 Aircraft. Place a 22-foot cargo extraction parachute and a two-point 5 1/2-inch link assembly on the load for installation in the aircraft. See FM 10-500-2/TO 13C7-1-5 for extraction line requirements.

#### 5-31. Marking Rigged Load

Mark the rigged load as described in FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-39. Complete DD Form 1387-2, and securely attach it to the load. If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION: Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.



CB

## RIGGED LOAD DATA

Weight: Load shown	11,2000 pounds
Height	
Width	108 inches
Length	201 inches
Overhang: Front	0 inches
Rear	5 1/2 inches
CB (from front edge of platform)	105 inches
Extraction system	EFTC

Figure 5-39. M119 howitzer rigged with 81-millimeter mortar for low-velocity airdrop on a Type V platform

## 5-32. Equipment Required

Use the equipment listed in Table 5-2 to rig the load shown.

Table 5-2. Equipment required for rigging the M119 howitzer with 81-millimeter mortar for low-velocity airdrop on a type V platform

National Stock Number	ltem	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	•
4030-00-678-8562	3/4-in (medium) (emergency restraint)	4
4030-00-090-5354	1-in (large)	
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5785	Coupling, airdrop, extraction force transfer w 16-ft cable	1
1670-00-360-0328	Cover, clevis, large	1
1670-00-360-0329	Cover, link	
8135-00-664-6958	Cushioning material, packaging, cellulose	
	wadding	As required
8305-00-958-3685	Felt, 1/2-inch	
1670-01-183-2678	Leaf, extraction line	
	Line, extraction:	
1670-01-062-6313	60-ft (3-loop), type XXVI nylon webbing (for C-130)	1
1670-01-107-7651	140-ft (3-loop), type XXVI nylon webbing (for C-141)	
	Link assembly:	
1670-00-783-5988	Type IV	6
	Two-point, 3 3/4-in	
5306-00-435-8994	Bolt	(2)
5310-00-232-5165	Nut	(2)
1670-00-003-1953	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
	Two-point, 5 1/2-in	2
5306-00-435-8994	Bolt	(4)
5310-00-232-5165	Nut	(4)
1670-00-003-1954	Plate, side, 5 1/2-in	(4)
5365-00-007-3414	Spacer, large	(4)
	Lumber:	
5510-00-220-6146	2- by 4- by 24-in	1
5510-00-220-6196	2- by 6- by:	
	37-in	2
	70-in	2
5510-00-220-6246	2- by 8- by 40-in	5
	Nail, steel wire, common:	
5315-00-010-4659	8d	As required
5315-00-164-5121	20d	As required

Table 5-2. Equipment required for rigging the M119 howitzer with 81-millimeter mortar for low-velocity airdrop on a type V platform (continued)

National Stock Number	ltem	Quantity
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	21 sheets
	3- by 16-in	
	12- by 8-in	
	12- by 45-in	
	12- by 90-in	
	15- by 36-in	
	18- by 18-in	
	18- by 36-in	
	24- by 18-in	(2)
	24- by 30-in	(1)
	25- by 30-in	(2)
	25- by 36-in	(10)
	30- by 10-in	(1)
	30- by 16-in	(8)
	30- by 20-in	(13)
	36- by 18-in	(3)
	36- by 84-in	(4)
	36- by 96-in	(2)
	62- by 24-in	(3)
	72- by 36-in	(10)
	Parachute, cargo:	
1670-00-687-5458	Extraction, 22-ft	
1670-01-016-7841	G-11B	
	Platform, AD, type V, 16-ft:	1
	Bracket:	
1670-01-162-2375	Inside EFTA	` ,
1670-01-162-2374	Outside EFTA	
1670-01-162-2372	Clevis assembly	
1670-01-162-2376	Extraction bracket assembly	· · ·
1670-01-162-2381	Tandem link	(4)
5530-00-129-7777	Plywood, 1/2-in:	
	7 1/2- by 40-in	1
	10 1/2- by 6-in	1
5530-00-128-4981	Plywood, 3/4-in:	
	7 1/2- by 40-in	
	12- by 8-in	
	12- by 44-in	
	19- by 88-in	
	21- by 6-in	
	24- by 62-in	2

## C3, FM 10-519/FMFM 7-55/TO 13C7-10-31

Table 5-2. Equipment required for rigging the M119 howitzer with 81-millimeter mortar for low-velocity airdrop on a type V platform (continued)

National Stock Number	ltem Q	uantity
	25- by 36-in	2
	30- by 6-in	
	30- by 20-in	
	48- by 70-in	
1670-01-097-8816	Release, cargo parachute, M-1	
1670-00-251-1153	Sling assembly, cargo airdrop, A-7A	
	Sling, cargo, airdrop:	
	For antitumble sling:	
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	1
	For deployment line:	
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	1
	For lifting:	
1670-01-063-7760	11-ft (2-loop), type XXVI nylon webbing	4
	For riser extension:	
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	4
	For suspension:	
1670-01-062-6306	3-ft (4-loop), type XXVI nylon webbing	
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	2
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	2
1670-00-040-8219	Strap, parachute release, multicut, comes w 3 knives	
1670-00-368-7486	Strap, webbing, nylon (shear strap)	1
7510-00-266-5016	Tape, adhesive, 2-inAs	required
1670-00-937-0271	Tie-down assembly, 15-ft	65
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type IAs	required
8305-00-082-5752	Nylon, tubular, 1/2-in, 1,000-lb, naturalAs	required
8305-00-263-3591	Nylon, type VIII, 3,600-lbAs	required